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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,199	02/25/2004	Misty Azara	CQ10218	3364

23493 7590 08/04/2008

SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER	
COLUCCI, MICHAEL C	

ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
08/04/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@sughrue.com
USPatDocketing@sughrue.com

Office Action Summary	Application No.	Applicant(s)	
	10/785,199	AZARA ET AL.	
	Examiner	Art Unit	
	MICHAEL C. COLUCCI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/02/2008 has been entered.

Response to Arguments

2. Applicant's arguments, see Remarks, filed 05/02/2008, with respect to the rejection(s) of claim(s) 13, 14, and 28 under 35 U.S.C. 102(b) and claims(s) 1-12, 15-26, and 29-30 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Binnig et al. US 6792418 B1 (hereinafter Binnig). Though the previous reference of Chino teaches discourse analysis theory, Examiner has incorporated a new reference that is directed more specifically to the present invention. Binnig teaches the analysis of input strings that can be handled separately by a person or machine after processing occurs, wherein a grammatical parser is used to provide multiple frameworks for analysis based on various linguistic theories to output to a human/machine.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Can Prosody Aid the Automatic Classification of Dialog Acts in Conversational Speech?" (hereinafter Shriberg) in view of Binnig et al. US 6792418 B1 (hereinafter Binnig).

Re claims 1, 15, 29, and 30, Shriberg teaches a method of synthesizing speech (Page 5) using discourse function level prosodic features (Pages 14-18) comprising the steps of:

determining discourse functions in the input text the discourse functions being determined based on a mapping between basic discourse constituents of the determined theory of discourse analysis and a plurality of discourse functions (Pages 8-13);

determining a model of discourse function level prosodic features (Pages 14-18);

determining adjusted synthesized speech output (Page 5) based on the discourse functions and the model of discourse function level prosodic features (Pages 14-18)

However, Shriberg fails to teach determining a theory of discourse analysis from a plurality of theories of discourse analysis;

determining input text;

Binnig teaches a grammatical parser to create a syntactical structure of the input string. This syntactical structure exhibits the functional relation of the input string's elements. The grammatical theories of Slot Grammar, Lexical Functional Grammar, General Phrase Structure Grammar, or Discourse Representation Theory, all extensions of the ground-breaking work of Noam Chomsky (Syntactic Structures, 1959) provide possible frameworks for this step. It creates the input (formal) network 18 from the functional structure (Binnig Col. 14 lines 27-37))

Additionally, Binnig teaches a semantic preprocessor 17 creates a first guess of the resulting augmented input network by assigning semantical units (such as objects, attributes, connection objects, etc.) to the segments, individual words, individual keywords, or even semantical units (if the input string 12 contains any) of the input string 12, and connecting these semantical units with connection objects 3 (such as horizontal exchange, horizontal relation, scaling exchange, scaling relation, attribute connections 4, role connections 5, etc.) as the corresponding segments, individual words, individual keywords, or semantical units that they represent are deemed to be connected in the input string 12. Then the semantic processor 19 reads out the possible subsets from the knowledge database 11 or alternatively from the index database 13 that are deemed to be associated with the various semantical units of the above first guess of an augmented input network (which corresponds to the input string

12 and is generated by the semantical preprocessor 17). It performs a matching of the semantical units of the above guess with semantical units from the knowledge database 11 or alternatively from the index database 13 through classification rules (such as inheritance, implementation, and overwriting rules). The resulting network is then called the augmented input network (Col. 16 line 61 – Col. 17 line 19 & Fig. 2c).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Shriberg to incorporate the determination of input text and the determination of a theory of discourse analysis from a plurality of theories of discourse analysis as taught by Binnig to allow for the augmentation of a knowledge database, wherein a system can learn the relationship between various terms in the input text and learn to semantically process input text with improved results at each iteration prior to outputting refined text (Col. 16 line 61 – Col. 17 line 19 & Fig. 2c).

Re claims 2 and 16, Shriberg teaches the method of claim 1, wherein the discourse functions are determined based on the determined theory of discourse analysis (Pages 8-13).

Re claims 3 and 17, Shriberg fails to teach the method of claim 2, in which the theory of discourse analysis is at least one of: the Linguistic Discourse Model, the Unified Linguistic Discourse Model, Rhetorical Structures Theory, Discourse Structure Theory and Structured Discourse Representation Theory;

Re claims 4 and 18, Shriberg teaches the method of claim 1, wherein the output information (Pages 4-5, Why Use Prosody?) is at least one of text information and application output information (Pages 8-13).

Re claims 5 and 19, Shriberg teaches the method of claim 1, wherein determining the adjusted synthesized speech output (Pages 4-5, Why Use Prosody?) further comprises the steps of:

determining a synthesized speech output (Pages 4-5, Why Use Prosody?) based on the input text;

determining discourse function level prosodic feature adjustments (Pages 14-18);

determining the adjusted synthesized speech output based on the synthesized speech output (Pages 8-13) and the discourse level prosodic feature adjustments (Pages 14-18).

However, Shriberg fails to teach determining input text;

Binnig teaches a grammatical parser to create a syntactical structure of the input string. This syntactical structure exhibits the functional relation of the input string's elements. The grammatical theories of Slot Grammar, Lexical Functional Grammar, General Phrase Structure Grammar, or Discourse Representation Theory, all extensions of the ground-breaking work of Noam Chomsky (Syntactic Structures, 1959) provide possible frameworks for this step. It creates the input (formal) network 18 from the functional structure (Binnig Col. 14 lines 27-37))

Additionally, Binnig teaches a semantic preprocessor 17 creates a first guess of the resulting augmented input network by assigning semantical units (such as objects, attributes, connection objects, etc.) to the segments, individual words, individual keywords, or even semantical units (if the input string 12 contains any) of the input string 12, and connecting these semantical units with connection objects 3 (such as horizontal exchange, horizontal relation, scaling exchange, scaling relation, attribute connections 4, role connections 5, etc.) as the corresponding segments, individual words, individual keywords, or semantical units that they represent are deemed to be connected in the input string 12. Then the semantic processor 19 reads out the possible subsets from the knowledge database 11 or alternatively from the index database 13 that are deemed to be associated with the various semantical units of the above first guess of an augmented input network (which corresponds to the input string 12 and is generated by the semantical preprocessor 17). It performs a matching of the semantical units of the above guess with semantical units from the knowledge database 11 or alternatively from the index database 13 through classification rules (such as inheritance, implementation, and overwriting rules). The resulting network is then called the augmented input network (Col. 16 line 61 – Col. 17 line 19 & Fig. 2c).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Shriberg to incorporate the determination of input text as taught by Binnig to allow for the augmentation of a knowledge database, wherein a system can learn the relationship between various terms in the input text and

learn to semantically process input text with improved results at each iteration prior to outputting refined text (Col. 16 line 61 – Col. 17 line 19 & Fig. 2c).

Re claims 6 and 20, Shriberg teaches the method system of claim 1, wherein the model of discourse function level prosodic features (Pages 14-18) is a predictive model of discourse functions (Page 19).

Re claims 7 and 21, Shriberg teaches the method of claim 6, in which the predictive models are determined based on at least one of: machine learning and rules (Page 19).

Re claims 8 and 22, Shriberg teaches the method of claim 1, in which the prosodic features occur in at least one of a location: preceding, within and following the associated discourse function (Page 14).

Re claims 9 and 23, Shriberg teaches the method of claim 1, in which the prosodic features are encoded within a prosodic feature vector.

Re claims 10 and 24, Shriberg teaches the method of claim 9, in which the prosodic feature vector is a multimodal feature vector (Pages 14-18 & Table 10).

Re claims 11 and 25, Shriberg teaches the method of claim 1, in which the discourse functions include an intra-sentential discourse function (Page 8 & Table 1).

Re claims 12 and 26, Shriberg teaches the method of claim 1, in which the discourse functions include an inter-sentential discourse function (Page 8 & Table 1).

Re claim 13, Shriberg teaches a method of synthesizing speech using discourse function level prosodic features comprising the steps of:

determining discourse functions in the input text based on a contextually aware theory of discourse analysis using a mapping between basic discourse constituents of the contextually aware theory of discourse analysis and a plurality of discourse functions (Pages 8-13);

determining a model of discourse function level prosodic features (Pages 14-18);

determining adjusted synthesized speech output (Pages 4-5, Why Use Prosody?) based on the discourse functions and the model of discourse function level prosodic features (Pages 14-18).

However, Shriberg fails to teach determining input text;

Binnig teaches a grammatical parser to create a syntactical structure of the input string. This syntactical structure exhibits the functional relation of the input string's elements. The grammatical theories of Slot Grammar, Lexical Functional Grammar, General Phrase Structure Grammar, or Discourse Representation Theory, all extensions of the ground-breaking work of Noam Chomsky (Syntactic Structures, 1959)

provide possible frameworks for this step. It creates the input (formal) network 18 from the functional structure (Binnig Col. 14 lines 27-37))

Additionally, Binnig teaches a semantic preprocessor 17 creates a first guess of the resulting augmented input network by assigning semantical units (such as objects, attributes, connection objects, etc.) to the segments, individual words, individual keywords, or even semantical units (if the input string 12 contains any) of the input string 12, and connecting these semantical units with connection objects 3 (such as horizontal exchange, horizontal relation, scaling exchange, scaling relation, attribute connections 4, role connections 5, etc.) as the corresponding segments, individual words, individual keywords, or semantical units that they represent are deemed to be connected in the input string 12. Then the semantic processor 19 reads out the possible subsets from the knowledge database 11 or alternatively from the index database 13 that are deemed to be associated with the various semantical units of the above first guess of an augmented input network (which corresponds to the input string 12 and is generated by the semantical preprocessor 17). It performs a matching of the semantical units of the above guess with semantical units from the knowledge database 11 or alternatively from the index database 13 through classification rules (such as inheritance, implementation, and overwriting rules). The resulting network is then called the augmented input network (Col. 16 line 61 – Col. 17 line 19 & Fig. 2c).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Shriberg to incorporate the determination of input text as taught by Binnig to allow for the augmentation of a knowledge database,

wherein a system can learn the relationship between various terms in the input text and learn to semantically process input text with improved results at each iteration prior to outputting refined text (Col. 16 line 61 – Col. 17 line 19 & Fig. 2c).

Re claims 14 and 28, Shriberg teaches the method of claim 13, in which the context is at least one of: semantic, pragmatic, and syntactic context (pages 4-5)

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6810378 B2, US 5751906 A, US 5890117 A, US 20020078091 A1, US 20020142277 A1, US 20040044519 A 1, US 20050042592 A1, US 20070073533 A1, US 5732395 A, and Jurafsky et al., "Automatic Detection of Discourse Structure for Speech Recognition Understanding", Automatic Speech Recognition and Understanding, 1997. Proceedings., 1997 IEEE Workshop..

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Colucci whose telephone number is (571)-270-1847. The examiner can normally be reached on 9:30 am - 6:00 pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)-272-7602. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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